

# **EXHIBIT W**

TVT (clear and blue)

confidential

**Risk assessment TTVT blue**

No changes have been made to the product and its intended use, apart from the colour. The biocompatibility of this new variations has been evaluated (section 9) and it has been concluded that the product will have the same safety level as the existing product.

Also the clinical evaluation revealed no new risks (section 11)

The design validation shows that the new variation delivers the intended visibility.

As no new risks have been identified the original risk assessment for TTVT clear is also valid for TTVT blue.

*J. Jaffer 129.05.02*

08.05.01

**Anhang 4-02/3:** Bewertung der Gefahrenarten (Risikoanalyse nach EN 1441)

Product: TVT		Project:		Design Review:		Proof FMEA:	
Prozessschritt:		/ Failure Mode		Probability of occurrence		Risk Class	
Hazard	Source	Exposition Potential consequence	/ Failure Mode	Probability of occurrence	Risk Class	Applicable safety measure	Other hazards generated?
1) Bioburden	Manufacturer	Longterm/ Serious	Failure	Rare	5	Manufacturing under conditions, Control of bioburden	GMP- No
2) Non-decomposable residues	Manufacturer	Longterm/ Serious	Failure	Rare	5	Washing of needle, Biocompatibility-testing	No
3) Pyrogenity	See 1						
4) Wrong composition of material	See 1g and h						
5) Systemic Toxicity	Manufacturer	Longterm / Serious	Failure	Rare	5	Biocompatibility-testing	No
6) Genotoxicity	See 5						
/Teratogenicity							
7) Allergical Effects	See 5						
8) Cytotoxicity	See 5						
9) Other bio-incompatibilities	n.a.						
10) Non-observance of hygiene	User	Long / Serious	Failure	occasional	6	No special measures, as risk is not product specific	
11) (Cross-)Infection	n.a.						
12) Incompatibility with other devices or products	Use of former introducer version	Short / marginal	Failure	Frequent	1	Old version was retrieved from the customer. Customer information	No 0
13) Lack of qualitative properties							
Treatment is not successfull	Not known	Long/ critical	Standard use	Probable	6	Patient-consent, less invasive than standard procedures	3 Risk accepted by patient
a) functional and qualitative properties							

RiskTVT

Seite 1 von 7

08.05.01

08.05.01

							No	1	Acceptable
13 a.) Needle does not allow the attachment of the introducer	Manufacturer / User	Short / moderate	Failure	Rare	1				
13. a.m) Sheath does not glide easily	Not imaginable								
13 b) Treatment (not cuttable)	Not imaginable								
13 c) Mesh will be fixated	Surgeon	No hazard							
13 d) Mix-up (cannot be distinguished from other products)	Not imaginable								
13 e) Not manageable with gloves	Not imaginable								
13 f) Not manageable with instruments	Not imaginable								
14) Human error/Reuse of disposable product	Not imaginable								
15) Insufficient warning of adverse reactions (only product related)	See 28 Clinical risks								
16) Loss of mechanical integrity	See 19 a and g								
17) Erroneous mechanical damage	Surgeon	No hazards							
18) Contamination as a result of waste –product and/ or waste of equipment	No special product related hazard								
19) Lack of quantitative properties									
a) Mechanical Properties									
a a) needle									
a.a) Needle strength (needle breakage)	Manufacturer	Short / marginal	Failure	Frequent	1		No	1	Negligible
a.b) Needle bending (elastic deformation)	No hazard								

RiskTVT

Seite3 von 7

08.05.01

								No	0	Acceptable
a.a.b) Needle bending (plastic deformation)	Surgeon	Short / marginal	Failure	Probable	0			No	0	Acceptable
a.a.c) Internal thread strength	Manufacturer	Short / marginal	Failure	Probable	0			No	0	Acceptable
a.a.d) Penetration resistance at urogenital diaphragma is too high	See 13 a.h									
a.b.) Mesh	Manufacturer	Short / marginal	Failure	Probable	0			No	0	Acceptable
a.b.a) tensile strength	Manufacturer	Long / critical	Failure	Occasional	4	Inspection at receiving		No	0	Acceptable
a.b.b) elongation	Manufacturer	Long / critical	Failure	Occasional	4	Inspection at receiving (Identity)		No	0	Acceptable
a.b.c) bending stiffness	Manufacturer	Long / critical	Failure	Occasional	4	Inspection at receiving (Identity)		No	0	Acceptable
a.b.d) pore size	Manufacturer	Long / critical	Failure							
a.c) assembly	Manufacturer	Short / moderate	Failure	Frequent	3	Process validation according to defect class I		No	0	Acceptable
b) Dimensions										
b.a) needle	Manufacturer	Short / critical	Failure	Remote	2	Inspection at receiving		No	0	Acceptable
b.a.a (below min. diameter at shoulder)										
b.b) mesh	Manufacturer	Short / moderate	Failure	Remote	2	Inspection during manufacturing		No	0	Acceptable
b.b.a) too short	Manufacturer	Long / critical	Failure	Rare	3	Inspection during manufacturing		No	0	Acceptable
b.b.b) too small	Manufacturer	Short / marginal	Failure	Frobale	0	Inspection during manufacturing		No	0	Acceptable
b.c) sheath (too short)	See 19.a.c.a									
b.d) shrink tube										
c) colour / appearance										
c.a) needle	Not imaginable									
c.b) mesh	Not imaginable									
c.c) sheath	See 19.a.c.a									
c.d) shrink tube	Not imaginable									
d) tightness	n.a.									
e) strength of mesh (vivo / vitro)	Not imaginable									
f) absorption	n.a									
g) Composition										
g.a) needle	See 19.a.a.a									

08.05.01

RiskTVT

Seite 5 von 7

08.05.01

b) Intraoperative blood loss exceeding 300 ml	User	long / moderate	Failure Mode	Rare	4	Patient monitoring procedure	is standard	No	0	acceptable
c) Overtensioning of tape	User	Long / critical	Failure Mode	Probable	5	-Info in IFU -Training		No	0	Acceptable
d) Level of wound infection and urinary tract infection higher than for other incontinence procedures	Not imaginable									
e) Injury of major vessels	User	Short / serious	Failure Mode	Frequent	7	-Info in IFU -Training -Restricted marketing (only to customers , equipped to be able to treat the injury - During the training it must be emphasized that the procedure should only be performed if a quick access to an intensive care unit is available		No	1	negligible
f) Injury of nerves	User	long / serious.	Failure Mode	Ocassional	6	-Info in IFU -Training		No	1	negligible
g) Injury of bowel	User	Short / serious	Failure Mode	Occasional	6	-Info in IFU -Training		No	1	Negligible
h) Injury of urethra	User	Short / critical	Failure Mode	Frequent	3	-Info in IFU -Training		No	0	Acceptable
i ) Bladder perforation	User	Short / critical	Failure Mode	Frequent	3	-Info in IFU -Training		No	0	Acceptable
j) Prolonged urinary retention	See 28c									
k) De novo detrusor instability	User	Long / critical	Failure Mode	Occasional	4	- Info in IFU - Training		No	0	Acceptable
l) Postoperative erosion of urethra	User	Long / critical	Failure Mode	Occasional	4	- Info in IFU - Training		No	0	Acceptable

08.05.01

Is safety of product adequate? Yes  No  Further measures.....

Carried out by: J. H. Jef..... Date: CS. 65.6.27

Reviewed by.....  
*J. J. Foster*  
Reg. Aff.

Scientific Director  
Medical Affairs

Marketing Manager  
Proj. L. Scient. Aff.

RiskTVT

08.05.01

Is safety of product adequate? Yes  No

Carried out by: I. H. Jensen

Date: Oct. 5, 1955

Reviewed by.....  
.....

John - 100

Scientific Director  
Medical Affairs

Marketing Manager  
Proj. L. Scient. Aff.

2010/05/31 10:51:03 31/05/2010 10:51:03 2010/05/31 10:51:03

RiskTVT

Seite 7 von 7

ETHICON SARL

# QA Memo

**To:** .Technical File  
**From:** Agnès SIFFERLEN  
**CC:**  
**Date:** July 26, 2000  
**Subject: RISK ANALYSIS**  
**Re:** QAMemo1700

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The original risk analysis for TVT implant and introducer written by Medscan is still valid (see risk analysis rev 7 dated February 6, 2000).

An additional analysis was done to document the packaging change. (see Device design safety assessment summary report rev 0)



Agnès SIFFERLEN  
Quality System and compliance supervisor.

<b>PREVENTIA</b>	
<b>TVT-2</b>	
Article No:	
Product:	TVT-2 needles, introducer
Customer:	
Prepared:	
1998-09-22	ME / TS
Revision No:	
7	2000-02-06
Approved by:	<i>Chi-Lam</i>
Preventia AB, Dep Education / 0256-1	

PREVENTIA

TVT-2

Ref No: MED-91 Eng	Article No: TVT-2	Product: TVT-2 needles, introducer
Note: Treatment of SUI	Drawing No: P15113, P15111, P15112	Dept: QA
Customer:	Responsible: ME / TS	Prepared: 1998-09-12
Revision No: 7	Review date: 2000-02-06	Page: 1 of 1
		<b>Note</b>

Analysis made 1998-09-22 by Margareta Eriksson and Tommy Svensson  
(PREVENTIA AB).

System description, see attached drawings.

Review of analysis 1999-01-27 by Margareta Eriksson and Tommy Svensson  
(PREVENTIA AB).

The revised TVT-2 device:

5 mm needle

Shiny surface

Tip angle same as 6 mm

Transparent shrink tube

Packed in double plastic

Handle screw instead of o-ring

Utgåva 4 1999-06-01  
Genomgång av ME / TS

Utgåva 5 1999-06-23  
Ny förändring av risker TS / ME

Issue 6

Review of risk analysis based surveillance data and complaint statistics 1999.  
Performed by ME and TS 2000-02-02.

Issue 7  
Revalution av text och Riskkarta beroende after action taken (typling errors)


**PREVENTIA**
**TVT-2**

Reg. No: MDP-91 Eng	Article No: TVT-2	Product: TVT-1 Intended, Introducing
Note: Treatment of SOT	Drawing No: P15103, P15104, P15102	Dept: QA
Customer:	Reportable: ME / TS	Prepared: 1998-05-21
Revision No: 7	Revision date: 2008-02-06	Page: 1 of 1

Scales

$$RPN = P_o * S * P_d$$

S. Severity

1. No effect
2. Limited effect on function or appearance
3. Limited effect on function or appearance
4. Severe effect on function or appearance
5. Minor reversible injury, no function
6. Minor reversible injury, no function
7. Severe reversible injury, small irreversible injury
8. Major irreversible injury
9. Severe irreversible injury
10. Death

P<sub>o</sub>. Prob of occur.

1. Not likely, <1:100 000
2. Very low probability, <1:10 000
3. Very low probability, <1:10 000
4. Low probability, <1:1 000
5. Low probability, <1:1 000
6. Medium probability, <1:500
7. Medium probability, <1:100
8. High probability, <1:50
9. High probability, <1:10
10. Very high probability, 1:1

P<sub>d</sub>. Prob of detect.

1. WWH always be discovered
2. Very high probability of detection
3. High probability
4. Normal probability
5. Minor probability
6. Minor probability
7. Low probability
8. Low probability
9. WWH probably not be detected
10. WWH not be detected


**PREVENTIA**
**TVT-2**

Process step:		Failure Mode	Cause	Effect	Control	P2	S	Td	RTN	Action/Definition	Request	E	S	E	RTN
(1) Preparing for the surgical procedure		Unsterile Introducer	Sterilization (on site) has not been effective	Surgical gloves unsterile $\rightarrow$ risk for infection	Instruction from MMAB 1 concerning cleaning and sterilization	1	6	2	12*	Acceptable risk	x	1	6	2	12*
		Unsterile TVT-2 device (single use)	Sterilization process not effective	Infection	MMAB EN 46 001, sterilization validation performed	1	8	2	16*	Acceptable risk	x	1	8	2	16*
		Sterile package not effective			MMAB EN 46 001, sterile package validation performed	1	8	2	16*	Acceptable risk	x	1	8	2	16*
Damaged TVT-2 device		Unscrupulous handling during manufacture / transport / preparation	Tissue damage or new treatment	No pre-caution in instruction manual concerning damage during preparation.	1	5	2	10*	Acceptable risk	x	1	5	2	10*	
		Needle falls outside the instrument table: tape stretched, protective sheath overlay separated	Tissue damage or new treatment	Normal preparation techniques in operating theater	1	5	2	10*	Acceptable risk	x	1	5	2	10*	
		Protective caps falling off, needle tips damaged	Tissue damage or new treatment	The weight of the needle tip is same as 6 mm clasper. Protective caps.	1	5	2	10*	Acceptable risk	x	1	5	2	10*	
Wrong size of TVT device		Mislabelling of package / wrong shipment / wrong device prepared by nurse	The handle will not fit / treatment not possible	MMAB Quality system. 5 mm resp 6 mm needles have different article nos.	1	4	1	4	Acceptable risk	x	1	4	1	4	

\* = Risk of injury



147

TWT-2

Ref No: MED-91-002		Article No: TVT-2		Drawing No: P15113, P15111, P15112		Product TVT-2 needles, Introducer	
Name: Treatment of SUI		Customer:		Dept QA		Prepared: 1998-02-22	
Revision No: 7		Revised date: 2004-02-06		Page 2 of 6			
Failure mode	Failure mode	Cause	Effect	Control	Ex	S	RPN
(1) Attaching Introducer to the needle	Introducer loose from TVT-2 device	Screw not assembled correctly in handle	Screw drops on the floor → sterile. New Introducer must be prepared, delayed procedure.	Introducer assembly after cleaning and sterilization	1	5	5*
		6 cm Introducer attached to 5 mm TVT-2 device needle	New Introducer must be prepared, delayed procedure	Not possible	1	1	1
		Screw threading on handle worn out	Screw drops on the floor → sterile. New Introducer must be prepared, delayed procedure	Assembly procedure in Instructions for use. Screw thread length increased.	1	5	5*
Needle / Introducer attachment unavailable	Screw not enough thread	Unavailable needle tip position, no attachment and tissue damage (bladder / Uretra).			1	8	8*
	The screw slightly retarded (unwound) by the surgeon's hand during procedure	Unavailable needle tip position, unattachment tissue damage (bladder / Uretra).			1	8	8*
Tape and protective sheath clamped between Introducer and Needle	Wrong assembly procedure by surgeon /	Sleath separates. Damage to tissue due to damaged tips. New procedure required.	1999-06-01: 20000 operations performed to date, no reports concerning this failure mode.	2	5	20*	Acceptable risk.
					ME	2	20*

- 8 -

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## TVT-2

Product TVT-2 needles, Intended use									
Dept: QA									
Prepared: 1998-09-22									
Page: 3 of 6									
Present At:	Failure mode:	Case:	Effect:	Control:	Ex:	Ed:	EPN:	Action/follow-up:	Responsible:
Reg. No. MED-91 Eng	Needle does not fit to Introducer	Dimensions of Needle resn. Introducer wrong.	Needle not possible to fix to Introducer, Introducer sticks to Needle. New procedure	Manufacturing or Needles validated	1	4	1	Acceptable risk.	1 4 1 4
Notes: Treatment of SUT	Penetration of bladder	Anatomy is such that it may happen	Patient catheter 1 / 3 days.	Cystoscope in bladder during procedure. Instruction available in surgical procedure	8	5	2	80*	Acceptable risk. See literature review.
Customer: 77	Penetration of tissue / surface of abdominal wall	Damage by needle tip during insertion	Urethral wall damaged, bleeding, scar on Urethra	Instructions to use catheter guide.	3	8	6	144*	Acceptable risk.
Revisions No: 7	Bleeding from pelvic floor / space of Retzius	Anatomy is such that it may happen	Bleeding in the tissue	Instructions for use, surgical procedure. Surgeon must be familiar with SUT procedure	7	7	2	98*	Acceptable risk
	TVT instrument unusable		Bleeding in the tissue	Instructions for use, surgical procedure.	1	7	2	14*	Acceptable risk.
	Interal vascular injury	Wrong surgical technique.	Bleeding in the tissue	Instructions for use, surgical procedure. Surgeon must be familiar with SUT procedure	3	9	2	54*	Acceptable risk. Change instructions for use to include needle position in patient length direction
	TVT instrument unusable		Bleeding in the tissue	Instructions for use, surgical procedure.	1	9	2	18*	Postmarket surveillance.
	Damage to nerves, local anaesthetics	Anatomy is such that it may happen	Damage to nerve functions, pain	Instructions for use, surgical procedure	2	8	2	32*	Acceptable risk

\* = Risk of injury

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## TVT-2

		Product: TVT-2 (medics, hydrodilat)						MEDICAL AB					
		Article No: TVT-2			Prepared: 15/04-09-22			Actions/Follow-up			Reported:		
		Drawing No: P15111, P15112			Prepared: 15/04-09-22			-			E. S. E.		
		Reportable: ME / TS			Page: 4 of 6			-			E. S. E.		
Revision date: 20/08-02-06		Revision No: 7											
Process step:	Failure mode	Cause	Effect	Control	P <sub>0</sub>	S <sub>0</sub>	R <sub>0</sub>	Actions/Follow-up	Reported:	E. S. E.	RPN		
	Damage to nerves, spinal, epidural, general anaesthesia	A surgery is such that it may happen	Damage to nerve function, postoperative pain	No pain, more difficult	2	6	96*	Acceptable risk	-	2	6	96*	
	Bowl perforation / obstruction	Wrong surgical procedure, anatomy is such that it may happen	Pain, perforation		2	9	4	72*	Acceptable risk.	-	2	9	4
	Needle resistance too low	Diameter of needle 5 mm instead of 6 mm	Uncontrolled Needle tip position, unintentional tissue damage (incl. Uretra).	Properties of tensile strength and torsion strength available in supplier certificate.	1	8	2	16*	Acceptable risk.	-	1	8	2
	Radius of Needle wrong	Wrong manufacturing	Uncontrolled Needle tip position. (Unintentional tissue damage incl. Uretra)		1	8	4	32*	Acceptable risk	-	1	8	4
	Needle broken during procedure	In sufficient mechanical strength of Needle	Breaks of the needle removed (surgical intervention).		6	5	1	30*	New needle design / material (2333) <2010-03-01	ME	6	5	1
	Protective sheath overhang separated	Wrong assembly	Damage to the prostate mesh, damage to tissue, new procedure	WIMAS Quality system	2	5	2	20*	Acceptable risk	-	2	5	2
	Needle resistance to TVT	Acute kink in separation of overlap during surgical procedure	Damage to the prostate mesh, repeat the procedure	Surgeons attention	2	5	2	20*	Acceptable risk	-	2	5	2
		Smaller diameter	Less control of pos. of Needle tip during surgery procedure.		2	8	2	32*	Acceptable risk	ME	2	8	2
		6 mm TVT											
		stabilized Needle											

\* = Risk of injury

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## TVT-2

		Product: TVT-2 needles, introducer						
		Dept: QA						
		Prepared: 1998-09-22						
		Page: 5 of 6						
Process step:	Failure mode	Cause	Effect	Control	R <sub>0</sub>	S <sub>0</sub>	RPN	R <sub>0</sub>
	Tape and protective sheath separates from Needle	Force of MT 5000 (clear attachment (shrink tube) less compared to TVT generation 1)	New introducer, protective sheath remains in tissue, removed surgically		1	5	1	10*
	Toxicological reaction	Toxic material in clear attachment (shrink tube) Akera MT-5000 (clear)	Shock, sensitization	Toxicological testing Results of System material available Akera MT-5000 (clear)	1	8	2	16*
	Toxic material in protective sheath	Toxic material in protective sheath	Toxic material available	Toxicological data available	1	8	2	16*
	Toxic material in Protective tape	Shock, sensitization	Toxicological test results available	Toxicological test results available	1	8	2	16*
(4) Removal and re-introduction of needle (in case of bladder penetration)	No risks identified.							
(5) Release of introducer from Needle	Needle does not separate from introducer	Distension of Needle prep. introducer wrong.	Excess force required to remove Needle. New procedure.	Validation of manufacturing of Needles.	2	4	2	16*
(6) Bringing the needle above the abdominal wall	Protective sheath losses from mesh and/or mesh looses before it is cut	In sufficient tensile strength below the protective sheath	Remove the protective sheath through surgical procedure. Repeat the procedure		2	6	2	24*
(7) Repeat on the other side	No specific risks identified							
(8) Cutting tape and remove needles	Tape and protective sheath slips below abdominal wall surface	Try to locate tape and, new procedure, alternative treatment	Instructions for use clear.		2	4	2	16

\* = Risk of injury

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## TVT-2

Ref No: MED-01 Eng		Article No: TVT-2		Product: TVT-2 section introducer	
Note: Treatment of SUI		Drawing No: P15113, P15111, P15112		Dept: QA	
Customer:		Responsable: M/E/TS		Prepared: 1998-09-22	
Revision No: 7		Revision date: 2000-02-06		Page: 6 of 6	
Process step:	Failure mode	Cause	Effect	Control	Response:
(9) Tension adjustment and cough-test	Too hard tension	Wrong judgement by surgeon	Urine retention, resident urine, repeat the procedure, loosen the mesh	Instructions for use clear.	P: 2 S: 5 RPN: 2 Acceptable risk: X
	Too loose tension	Wrong judgement by surgeon	No treatment effect (leakage), New procedure.	Instructions clear.	P: 2 S: 5 RPN: 2 Acceptable risk: X
(10) Removal of the protective mesh	Difficult to remove	Friction in overlap	Remove the protective mesh by other means, delay of procedure	P: 3 S: 5 RPN: 15* Acceptable risk: X	P: 2 S: 5 RPN: 2 Acceptable risk: X
	Particles from Prostex mesh falls off into the tissue	Particles damaged	No effect. Implantable material.	P: 2 S: 10 RPN: 20 Acceptable risk: X	P: 3 S: 5 RPN: 15* Acceptable risk: X
	(11) Cutting of the tape under the skin, suturing the incisions	No risks identified			P: 2 S: 1 RPN: 0
	(12) End of procedure	No risks identified			

\* = Risk of injury

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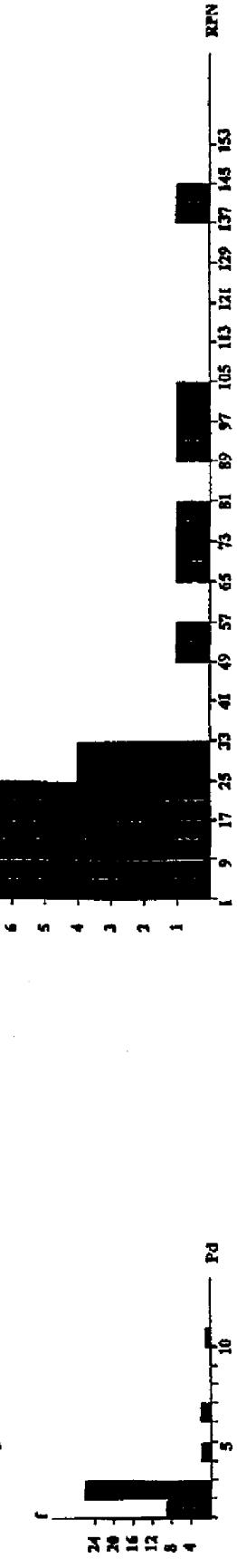
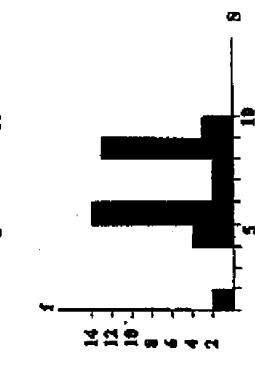
TVT-2

Reg. No. MED-91 Egg	Article No: TVT-2	Product: TVT-2 specific, Inovducer
Name: Treatment of Egg	Drawing No: P15111, P15112	Dept: QA
Customer:	Responsible: MR. TS	Prepared: 1998-09-22
Revision No: 7	Revision date: 2008-02-06	Page: 1 of 1

Risk profile

- RPN-before action
- RPN-after action

Risk profile



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